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## THE CORRELATION BETWEEN THE ABILITY TO CLASSIFY GERMAN VOCABLES INTO THEIR SEMASIOLOGICAL CATEGORIES AND THE KNOWLEDGE OF THEIR EXACT SIGNIFICATION

Following a suggestion of Prof. E. L. Thorndike the writer has undertaken a preliminary study of the above problem which seems to present several useful aspects from a methodological point of view. The tests have the advantage of perfect generality being applicable to any language whatever whether vernacular or foreign, occupy less time than the usual examination, are more likely to train the student to think in the foreign language and are thus superior to the translation methods in vogue from a psychological and methodological point of view.

The *modus operandi* consists in preparing lists of German words such as a German schoolboy might reasonably be expected to understand. These groups of words are graded in difficulty so that the last and most difficult series might represent the vocabulary attainments of a young *Gymnasiast*. It was attempted to avoid literary words and confine the vocabulary to such words as occur in actual life. Thus names of games, business, military, educational and even religious terminology was preferred to strictly book language. Samples of the lists in three grades of difficulty are given below.\* The directions make their use perfectly clear. The student classifies the words by setting the appropriate letter over or under each, the nomenclature being mostly the initial of the German or English category-word. For example, tools are to be marked "w" (*Werkzeug*), words relating to time "t" (time). These classifications are easy to invent for any language and resemble the old idea of Gouin with his "series." To mark such a paper takes little time and the results are unambiguous as the pupil either gets the category right or not and the doubt as to whether he "had the idea" but could not think of the English word so common in the minds of teachers who correct examination papers is mostly eliminated.

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\*Word-lists are appended to the article.

After this categorical classification with the above initial system the pupils (High School students of both sexes ranging through the curriculum from the middle grades to the graduating class) were next asked to give the exact signification of the words as in an ordinary vocabulary test. These results were then compiled either on the back of the first sheet or on separate papers. Several hundred tests of this sort have been made by the writer in the Brooklyn High Schools through the kind coöperation of Messrs. Overholzer, Bechert, Cohen, Marvin and Cushman. The following results of the tests are given for 93 students in the second year work in Boys' High School. The first column is the percentage gained on the category work, the second that on translation.

	CATEGORY-MARK	TRANSLATION-MARK	DIFFERENCE
1	.6667	.6600	— .0067
2	.7500	.4167	— .3333
3	.6833	.6500	— .0383
4	.7657	.4167	— .3500
5	.6333	.5167	— .1166
6	.6500	.4833	— .1667
7	.7000	.5333	— .1667
8	.5833	.5000	— .1833
9	.6333	.5000	— .1333
10	.3667	.3500	— .0167
11	.8167	.5167	— .3000
12	.7167	.6000	— .1167
13	.6500	.5333	— .1167
14	.6667	.5000	— .1667
15	.6500	.5333	— .1167
16	.6833	.5167	— .1666
17	.7333	.5333	— .2000
18	.8000	.6667	— .1333
19	.3167	.5333	+ .2166
20	.7833	.5833	— .2000
21	.7500	.6500	— .1000
22	.6833	.5667	— .1166
23	.8000	.4833	— .3167
24	.4500	.4000	— .0500
25	.6833	.4500	— .2333
26	.6667	.5000	— .1667
27	.7333	.7167	— .0166
28	.5833	.6500	+ .0667
29	.7833	.5000	— .2833
30	.8000	.6333	— .1667
31	.6000	.5000	— .1000
32	.7667	.6166	— .1501
33	.9500	.8833	— .0667
34	.7667	.5500	— .1167
35	.4333	.3167	— .1166
36	.6333	.5000	— .1333
37	.4333	.4333	.0000
38	.6667	.4500	— .2165

	CATEGORY-MARK	TRANSLATION-MARK	DIFFERENCE
39	.5000	.5000	.0000
40	.4500	.3333	— .1167
41	.5333	.3667	— .1666
42	.7833	.6500	— .1333
43	.5500	.4333	— .1167
44	.2833	.1833	— .1000
45	.4000	.4333	+ .0333
46	.4667	.4000	— .0667
47	.5667	.5167	— .0500
48	.6167	.6491	+ .0324
49	.7500	.5500	— .2000
50	.6167	.5714	— .0453
51	.5500	.5000	— .0500
52	.4000	.6429	+ .2429
53	.7500	.6383	— .1117
54	.6167	.5000	— .0167
55	.7333	.4333	— .3000
56	.6000	.5833	— .0167
57	.8333	.7000	— .1333
58	.6167	.5704	— .1167
59	.7500	.5333	— .2167
60	.4500	.5667	+ .1167
61	.7000	.5500	— .1500
62	.7500	.7833	+ .0333
63	.7167	.5000	— .2167
64	.6500	.5500	— .1000
65	.5167	.4706	— .0460
66	.7667	.6667	— .1000
67	.5667	.4500	— .1167
68	.4500	.3824	— .0676
69	.6833	.5167	— .1666
70	.5000	.3667	— .1333
71	.5167	.4333	— .0834
72	.4333	.3000	— .1333
73	.6333	.5000	— .1333
74	.6167	.6667	+ .0500
75	.6333	.5806	— .0527
76	.6000	.3333	— .2667
77	.7167	.5000	— .2167
78	.7667	.5333	— .2334
79	.4833	.4167	— .0666
80	.6500	.5667	— .0833
81	.5667	.3667	— .2000
82	.6000	.4833	— .1167
83	.6000	.4333	— .1667
84	.7667	.6833	— .0834
85	.7167	.6500	— .0667
86	.7667	.4833	— .2834
87	.6500	.6977	+ .0477
88	.5000	.5555	+ .0555
89	.7000	.4667	— .2333
90	.6833	.4167	— .2666
91	.8167	.6667	— .1500
92	.7500	.5667	— .1833
93	.6167	.5333	— .0834
Algebraic Sum = .....			— 10.4824
Average Diff. = .....			— .1127 = 11.27%

From the above figures arranged in percentages and fractions of a per cent it will be seen that there is in general a very consistent relation between the rating obtained on the category-work and the translation-mark. On the average the translation score falls 11.27 % below the category-mark. In ten cases out of the 93 it was higher and the conventional relation was about reversed, in two it equaled the category-rating but in the remaining 81 cases, i. e. nearly 90 % of the trials a very regular drop of from 10 % to 15 % on the average was observed. Thus in general an accurate idea of the pupil's proficiency in vocabulary-work could be gained by taking from 10 % to 15 % from his rating on the simpler and quicker category-test. In the anomalous ten cases where the translation-rating was better than the category-mark the ratings were mostly low (31-75 %, mainly in the forties). The translation-marks of these cases are usually not high (50-60 % on the average). The low category-marks may be due to the pupil's not understanding the test but the second set of translation-marks does not show that the judgment naturally made from the category-test, namely that these pupils are not very proficient, should be altered. The only exception to the above statement is no. 62—.7500—.7833. But here the category-rating happens to be fairly high to begin with. The "very best marks" .9500 — .8833, .8333 — .7000 (nos. 33 and 57) are consistent.

We see from the above résumé that we would scarcely ever be led astray in judging a pupil's proficiency in vocabulary-work by a test of the above nature. A trial of paper IX with 21 girls of the graduating class of Girls' High School led to even more consistent results. It was encouraging to note that the poorest students in the second year of Boys' High School tested with paper III received ratings of 31-37 % as minima on both tests (one exception, no. 44, .2833 and .1833). This means that practically all were able to classify and define as many as 20 accurately out of sixty. Most of the ratings were much better than this, the average for category-work running in the sixties (say 40 words out of 60), for translation above 50 (say 30 out of 60). The best student in the group defined correctly 53 words out of 60. These statements must be weighed in connection with the fact that the students were not accustomed to vocabulary-tests out of context.

To summarize the vocabulary-work on paper III, every pupil with one exception (no. 44) translated correctly 18 words out of 60. 2 knew 20; 13 knew 30; 5 knew 40; one knew more than 50 (53); 4 knew 25; 2 knew 35; 1 knew 47; 1 knew 53. The corresponding scores on the categories are very similar. The minimum is 17; 1 knew 19; 2 knew 24; 2 knew 26; 4 knew 27; 3 knew 30; 3 knew 35; 3 knew 40; 2 knew 48; 1 knew 57.

As to the character of the words familiar to various pupils. The first seven words of paper III, *lügner, billig, dann, faul, stehlen, ehrlich*, were known to practically all. Of the 93 second year boys, one did not know *lehrer* and three gave answers like "foul" for "*aul*" or left the word blank. The answer "foul" or "rotten" (*faule Eier*) was accepted. As examples of words giving trouble *feig* and *feigling* may be cited. Only the best boy in this group got the correct meaning of these two words. An almost universal error was to gloss *feig* with "fig" (*feige*) and to make *feigling* a diminutive = "little fig." "*Anspruchsvoll*" proved another "Stein des Anstosses." The enigma was again solved by the 95 % boy. *Buchstabieren, rechnen, schreiben, lesen* were known to the majority. *Entgegenkommend, fälscher, abtrünnig* were known to few, the last to none.

While these investigations are only suggestive it is thought that it is worth while to draw the attention of others to them.

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### III

Write the letter g under a word that means something that it is good for a boy or girl to be. Write the letter b under a word that means something that it is bad for a boy or a girl to be. Write the letter s under a word that means something that has to do with the school. Write the letter t under a word like "now" or "when" or "before" that has to do with time,

Remember—g for good things.

b for bad things.

s for words connected with the school.

t for words concerning time.

Lügner, billig, dann, faul, stehlen, lehrer, ehrlich, sauber, götig, nie, schreiben, schleicher, lesen, höflich, bevor, nützlich, geizig, mord, buchstabieren, rechnen, feig, nachher, wahr, bescheiden, aufrichtig, erdkunde, schurke, betrunken, entgegenkommend, später, betrügerisch, während, halunke, versetzen, freigebig, verbrecherisch, qual, treu, geschichte, geizhals, verworfener, früher, schönschrift, barmherzig, fälscher, mutig, abtrünnig, feigling, vernünftig, prüfung, nachsichtig, benehmen, zucht, gerecht, verleumder, vorhergehend, menschenfreundlich, bisher, ableitung, anspruchsvoll.

## VIII

Write a k under a word that means a part of the body. Write a w under a word that means a tool. Write an s under a word that refers to the sea or ships. Write an h under a word that denotes a part of a house.

Remember—k for parts of the body.

w for tools.

s for words referring to the sea or ships.

h for parts of a house.

Arme, Ohr, Welle, Tür, Auge, Schiff, Säge, Knochen, Segel, Hammer, Mauer, Gesicht, Fenster, Beil, Floss, Kammer, Schaum, Feile, Baumkahn, Woge, Messer, Hafen, Ellbogen, Küste, Dachstube, Gehirn, Busen, Untergeschoss, Brust, Schlagader, Brecheisen, Schenkel, Decke, Zwickbohrer, Fensterrahmen, Ladung, Eingang, Kreuzfahrt, Schornstein, Hüfte, Steuer, Ahle, Söller, Hackmesser, Rückgrat, Schraubenzieher, Dachfenster, Knopfel, Saal, Zahnrad, Niere, Wirbelwind, Kleinhirn, Teich, Hobel, Schlegel, Herd, Schraubenstock, Schädel, Getäfel, Breitbeil, Sehne, Hornhaut, Bohrer, Kniescheibe, Matrose, Bauchfell, Rumpf, Hafendamm.

## IX

Write the letter r under a word that means something that concerns churches or religion. Write a w under a word that concerns war or fighting. Write a g under a word that concerns business or money. Write a v under a word like "father," "son," "wife," that denotes family-relationship.

Remember—r for words concerning church and religion.

w for words concerning war and fighting.

v for words of relationship.

g for words about business or money.

Kämpfen, brunder, bezaalen, flasche, schwester, kaufen, lager, fahne, mutter, geld, verteidigen, beten, verkaufen, geschütz, vater, fest, schulden, niederlage, festung, tante, kaufmann, kanone, erobern, steuer, flügel, geldwesen, einkreisen, bischof, mönch, vorteil, onkel, glaube, zins, wache, kloster, neffe, fracht, waise, dolch, einkommen, heirät, gottesdienst, besitztum, vetter, pachten, oberst, abt, nichte, gefangener, verwandter, zahlungsunfähig, fussvolk, taufe, nachfolger, kauf, nachkommenschaft, angreifer, befehlshaber, hilfsgeistlicher, sperre, scheidung, bürgschaft, abzug, schild, fälschung, burg, feldzu, hypothek, reiterei, verwandschaft, versicherung, bistum, stammbaum, kirchlich, vorfahre, entschädigung, prozess, schanze, reuig, ererbt, päpstlich, kriegführend, unterschlagung, feldflasche, kanzel, begebbar, mönchswesen.